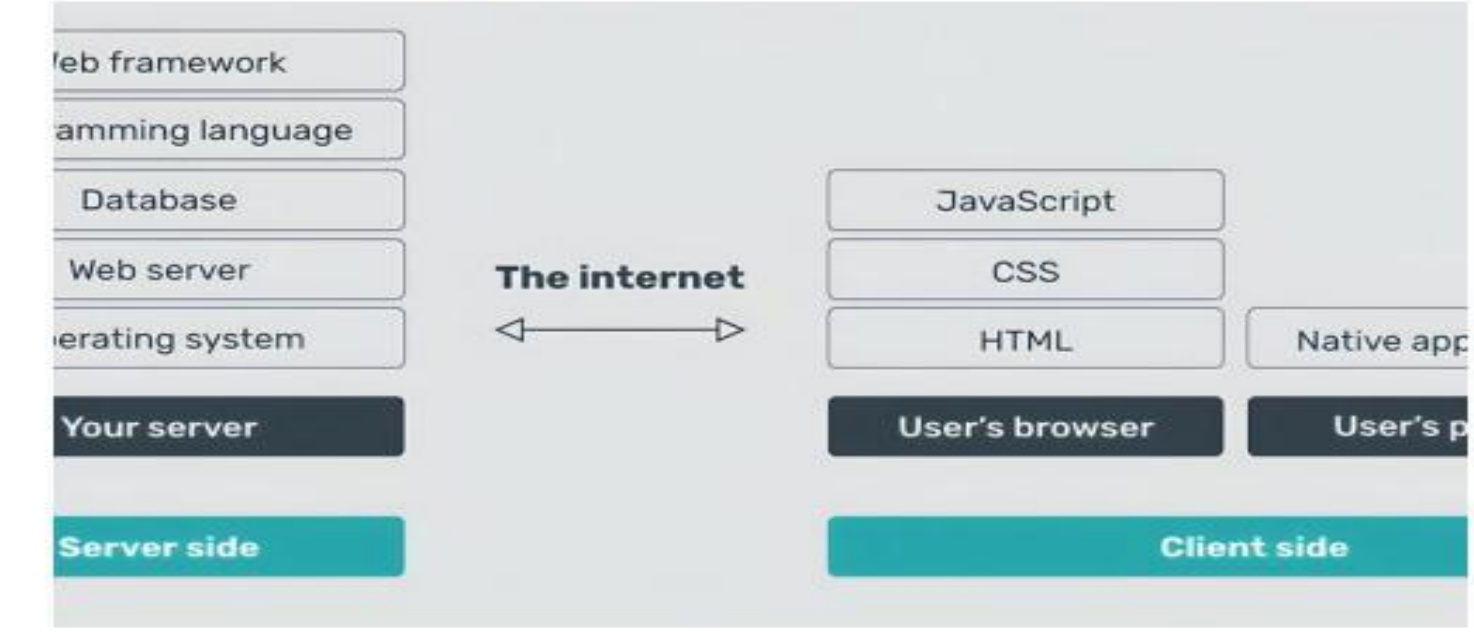
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2023
Team ID	Team-591784
Project Name	Disease Prediction Using Machine Learning
Maximum Marks	4 Marks

Technology stack :



Project Implementation Technology

The Project is designed and developed in Django Framework. We used Django Framework for coding the project. Created and maintained all databases in MySQL Server, in that we create tables, and write queries for store data or records of the project.

I. Hardware Requirement

Laptop or PC

- Windows 7 or higher
- I3 processor system or higher
- 4 GB RAM or higher
- 100 GB ROM or higher

II. Software Requirement

Laptop or PC

- Python
- Sublime Text Editor
- XAMP Server

OVERVIEW OF TECHNOLOGIES USED

INTRODUCTION

Python is a powerful multi-purpose programming language created by Guido van Rossum. It has simple easy-to-use syntax, making it the perfect language for someone trying to learn computer programming for the first time. This is a comprehensive guide on how to get started in Python, why you should learn it and how you can learn it. However, if youknow other programming languages and want to quickly get started with Python. Python is a general-purpose language. It has a wide range of applications from Web development (like Django and Bottle), scientific and mathematical computing (Orange, SymPy, NumPy) to desktop graphical user

Interfaces (Pygame, Panda3D). The syntax of the language is clean and the length of the code is relatively short. It's fun to work in Python because it allows you to think about the problem rather than focusing on the syntax.

Features of Python Programming:

A simple language which is easier to learn

Python has a very simple and elegant syntax. It's much easier to read and write Python programs compared to other languages like C++, Java, and C#. Python makes programming fun and allows you to focus on the solution rather than syntax. If you are a newbie, it's a great choice to start your journey with Python.

- **Free and open-source**

You can freely use and distribute Python, even for commercial use. Not only can you use and distribute software written in it, but you can also even make changes to Python's source code.

Python has a large community constantly improving it in each iteration.

- **Portability**

You can move Python programs from one platform to another, and run them without any changes.

It runs seamlessly on almost all platforms including Windows, Mac OS X and Linux.

- **Extensible and Embeddable**

Suppose an application requires high performance. You can easily combine pieces of C/C++ or other languages with Python code.

This will give your application high performance as well as scripting capabilities which other languages may not provide out of the box.

- **A high-level, interpreted language**

Unlike C/C++, you don't have to worry about daunting tasks like memory management, garbage collection and so on. Likewise, when you run Python code, it automatically converts your code to the language your computer understands. You don't need to worry about any lower-level operations.

· **Large standard libraries to solve common tasks**

Python has several standard libraries which makes the life of a programmer much easier since you don't have to write all the code yourself. For example: Need to connect MySQL database on a Web server? You can use the MySQLdb library using import MySQLdb.

Standard libraries in Python are well-tested and used by hundreds of people. So, you can be sure that it won't break your application.

· **Object-oriented**

Everything in Python is an object. Object-oriented programming (OOP) helps you solve complex problems intuitively.

With OOP, you can divide these complex problems into smaller sets by creating objects.

Features of Python Programming:

Web Applications

You can create scalable Web Apps using frameworks and CMS (Content Management Systems) that are built on Python. Some of the popular platforms for creating Web Apps are Django, Flask, Pyramid, Plone, and Django CMS.

Sites like Mozilla, Reddit, Instagram and PBS are written in Python.

Scientific and Numeric Computing

There are numerous libraries available in Python for scientific and numeric computing. There are libraries like SciPy and NumPy that are used in general-purpose computing. And, there are specific libraries like: EarthPy for earth science, AstroPy for Astronomy and so

on.

Also, the language is heavily used in machine learning, data mining and deep learning.

Creating software Prototypes

Python is slow compared to compiled languages like C++ and Java. It might not be a good choice if resources are limited and efficiency is a must.

However, Python is a great language for creating prototypes. For example, You can use Pygame (a library for creating games) to create your game's prototype first. If you like the prototype, you can use language like C++ to create the actual game.

Good Language to Teach Programming

Python is used by many companies to teach programming to kids and newbies.

It is a good language with a lot of features and capabilities. Yet, it's one of the easiest languages to learn because of its simple easy-to-use syntax.

Syntax Overview

Simple Elegant Syntax

Programming in Python is fun. It's easier to understand and write Python code. Why? The syntax feels natural. Take this source code for an example:

```
a = 2

b = 3

sum = a + b

print(sum)
```

Even if you have never programmed before, you can easily guess that this program adds two numbers and prints them.

Not overly strict

You don't need to define the type of a variable in Python. Also, it's not necessary to add a semicolon at the end of the statement.

Python enforces you to follow good practices (like proper indentation). These small things can make learning much easier for beginners.

The expressiveness of the language

Python allows you to write programs having greater functionality with fewer lines of code. Here's a link to the source code of the Tic-tac-toe game with a graphical interface and a smart computer opponent in less than 500 lines of code. This is just an example. You will be amazed at how much you can do with Python once you learn the basics.

Great Community and Support

Python has a large supporting community. There are numerous active forums online which can be handy if you are stuck. Some of them are:

Learn Python subreddit

Google Forum for Python

Python Questions - Stack Overflow

Django documentation

Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of Web development, so you can focus on writing your app without needing to reinvent the wheel. It’s free and open source.

Features of Django

- Rapid Development
- Secure
- Scalable

- Fully loaded
- Versatile
- Open Source
- Vast and Supported Community

Rapid Development

Django was designed to make a framework which takes less time to build web applications. The project implementation phase is very time taken but Django creates it rapidly.

Secure

Django takes security seriously and helps developers to avoid many common security mistakes, such as SQL injection, cross-site scripting, cross-site request forgery etc. Its user authentication system provides a secure way to manage user accounts and passwords.

Scalable

Django is scalable in nature and can quickly and flexibly switch from small to large-scale application projects.

Fully loaded

Django includes various helping task modules and libraries which can be used to handle common Web development tasks. Django takes care of user authentication, content administration, site maps, RSS feeds etc.

Versatile

Django is versatile in nature which allows it to build applications for different-different domains. Nowadays, Companies are using Django to build various types of applications like content management systems, social networks sites or scientific computing platforms etc.

Open Source

Django is an open-source web application framework. It is publicly available without cost. It can be downloaded with source code from the public repository. Open source reduces the total cost of the application development.

Vast and Supported Community

Django is one of the most popular web frameworks. It has a widely supportive community and channels to share and connect.

WAMP Server

Introduction

WAMP is a Windows OS-based program that installs and configures Apache web server, MySQL database server, PHP scripting language, phpMyAdmin (to manage MySQL databases), and SQLiteManager (to manage SQLite databases). WAMP is designed to offer an easy way to install Apache, PHP and MySQL packages with an easy-to-use installation program instead of having to install and configure everything yourself. WAMP is so easy because once it is installed it is ready to go. You don't have to do any additional configuring or tweaking of any configuration files to get it running.

There are usually two reasons why someone chooses to install WAMP. They are looking to install WAMP for development purposes or to run their server.

WAMP Server Contains

PHP Admin

Allows you to change or add users and for making new databases phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the World Wide Web. phpMyAdmin supports a wide range of operations with MySQL. The most frequently used operations are supported by the user interface (managing databases, tables, fields, relations, indexes, users, permissions, etc.), while you still can directly execute any SQL statement.

Features

- Intuitive web interface
- Support for most MySQL features:
  - Browse and drop databases, tables, views, fields and indexes.
  - Create, copy, drop, rename and alter databases, tables, fields and indexes.
  - Maintenance server, databases and tables, with proposals on server configuration.
  - Execute, edit and bookmark any SQL statement, even batch queries.
  - Manage MySQL users and privileges
  - Manage stored procedures and triggers.

- Import data from CSV and SQL
- Export data to various formats: CSV, SQL, XML, PDF, ISO/IEC 26300 - OpenDocument Text and Spreadsheet, Word, LATEX and others
- Administering multiple servers
- Creating PDF graphics of your database layout
- Creating complex queries using Query-by-example (QBE)

- Searching globally in a database or a subset of it
- Transforming stored data into any format using a set of predefined functions, like displaying BLOB-data as an image or download-link
- And much more...

SQL Server and Database System

SQL Server is a relational database management system from Microsoft that's designed for the enterprise environment. SQL Server runs on T-SQL (Transact -SQL), a set of programming extensions from Sybase and Microsoft that add several features to standard SQL, including transaction control, exception and error handling, row processing, and declared variables.

Generically, any database management system (DBMS) can respond to queries from client machines formatted in the SQL language. When capitalized, the term generally refers to either of the two database management products from Sybase and Microsoft. Both companies offer client-server DBMS products called SQL Server.

Using WAMP as a Development Server

You can use WAMP to develop and test websites locally on your computer instead of having to get a web hosting account to develop with. Most people will be using WAMP for development purposes such as learning how to create websites with HTML, PHP, and MySQL.

Using WAMP as a Production Server

WARNING: WAMP was designed to be a testing and development server, not an actual production server. WAMP does not come with any real security in place so it offers no protection from any kind of attack. Any 10-year-old with access to the internet can easily hack your WAMP server.

If your website(s) have highly sensitive data (such as credit card numbers, social security numbers, user ids, passwords, etc.), you need to consider this before you put this information online. Unless you are an experienced system administrator and can configure WAMP to be more secure, you should never use WAMP for a production server.

MySQL Configuration

To begin MySQL installation, first download the latest version of Essentials as an MSI package.

During MySQL installation, select Typical installation and use default configuration values except for Sign-Up where you probably want to select Skip Sign-Up. When Setup Wizard is completed, make sure the option Configure the MySQL Server now is set. For MySQL Server Instance Configuration, select Standard Configuration. Next, you must set the option Include Bin Directory in Windows PATH. This setting is crucial, otherwise, a required library, libMySQL.dll, will not be found later during Apache startup.

Finally, enter a proper root password. There is no need to neither enable remote root access nor create an Anonymous Account.

Please inspect messages during MySQL startup and verify that MySQL has been started successfully. Then, you must reboot the system. Otherwise, the required librarylibMySQL.dll will not be found during Apache startup when Apache is trying to load Apache's PHP module and Apache will, perhaps a bit confusingly, complain that it is unable to load the PHP's MySQL library, php_mysql.dll. Therefore, it is necessary to reboot the system at this stage and then continue to the PHP configuration.

PHP Configuration

PHP for Windows must be installed from the zip package, *not* using the installer because the installer does not work correctly when setting up the configuration files. Download the latest Windows binary version from the 5.x release series.

Create folder C:\Program Files\PHP5 and unzip the downloaded package there. Then, in folder C:\Program Files\PHP5 you

need to copy the file php.ini-recommended asphp.ini and make two changes to the php.ini file. Change extension_dir to:

```
extension_dir = "C:/Program Files/PHP5/ext/"
```

and also uncomment the following line:

```
extension=php_mysql.dll
```

That is all that is needed for PHP configuration. Additionally, however, if you wish to run PHP from the command line it would be useful to add its installation directory to Windows PATH but for WAMP to operate it is not required. After Apache is installed and configured, also PHP configuration can be tested.